

Title (en)  
HEAT PUMP HEATING SYSTEM

Title (de)  
WÄRMEPUMPENERHITZUNGSVORRICHTUNG

Title (fr)  
DISPOSITIF DE CHAUFFAGE DE TYPE POMPE À CHALEUR

Publication  
**EP 2420746 B1 20160113 (EN)**

Application  
**EP 10764229 A 20100407**

Priority  
• JP 2010002542 W 20100407  
• JP 2009096623 A 20090413

Abstract (en)  
[origin: US2012000236A1] A heat pump heating system (1A) includes: a refrigerant circuit (3) including a compressor (21), a radiator (22), and an expansion member (25A), and an evaporator (26); a circulation path (5) for circulating a liquid through the radiator (22) to produce a heated liquid; and a heater (4) for dissipating heat of the heated liquid. The refrigerant circuit (3) is provided with an internal heat exchanger (23A) for transferring heat from a high pressure refrigerant that has released heat in the radiator (22) to a low pressure refrigerant. The liquid flowing through the circulation path (5) is cooled in a liquid cooling heat exchanger (24) by means of the high pressure refrigerant flowing out of the internal heat exchanger (23A), before the liquid flows into the radiator (22).

IPC 8 full level  
**F24D 3/18** (2006.01); **F24D 3/08** (2006.01); **F24D 3/10** (2006.01); **F24D 17/02** (2006.01); **F24D 19/10** (2006.01); **F25B 30/02** (2006.01)

CPC (source: EP US)  
**F24D 3/08** (2013.01 - EP US); **F24D 3/18** (2013.01 - EP US); **F24D 11/0214** (2013.01 - EP US); **F24D 19/1024** (2013.01 - EP US); **F24D 19/1039** (2013.01 - EP US); **F24H 15/156** (2022.01 - EP US); **F24H 15/375** (2022.01 - EP US); **F24H 15/414** (2022.01 - EP US); **F25B 6/04** (2013.01 - EP US); **F25B 9/008** (2013.01 - US); **F25B 9/10** (2013.01 - US); **F25B 30/02** (2013.01 - EP US); **F25B 40/00** (2013.01 - EP US); **F25B 2309/061** (2013.01 - EP US); **F25B 2339/047** (2013.01 - EP US); **F25B 2341/0012** (2013.01 - EP US); **F25B 2400/23** (2013.01 - US); **Y02B 30/12** (2013.01 - EP US)

Cited by  
EP2918921A1

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

DOCDB simple family (publication)  
**US 2012000236 A1 20120105**; CN 102369397 A 20120307; CN 102369397 B 20140326; EP 2420746 A1 20120222; EP 2420746 A4 20140312; EP 2420746 B1 20160113; EP 2420746 B8 20160406; JP 5470374 B2 20140416; JP WO2010119642 A1 20121022; US 2017184314 A1 20170629; WO 2010119642 A1 20101021

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**US 201013257205 A 20100407**; CN 201080014403 A 20100407; EP 10764229 A 20100407; JP 2010002542 W 20100407; JP 2011509197 A 20100407; US 201715456073 A 20170310